Due to inadequate attention to the control of tuberculosis, 'new' TB bacteria have emerged. These strains of TB bacteria are resistant to standard anti-TB drugs. New drugs to deal with these bacteria have also been developed. That is to say, we have a second-line of drugs for the treatment of tuberculosis resistant to standard anti-TB drugs or first-line drugs. But public health experts, epidemiologists and planners are grappling with the rising number drug-resistant TB patients worldwide - multi-drug resistant or MDR TB in particular.

Various factors attribute to the rise of MDR TB - irregular and incomplete treatment, non-standard treatment, misuse of anti-TB drugs, toxicity and long course of treatment of available drugs, discontinuation of treatment by patients and so forth. Jhola Chhap doctors play a significant role in the rise of MDR TB but little is talked about them. Who are Jhola Chhap doctors? How do they contribute to the rise of MDR TB?

According to the World Health Organisation, the incidence of tuberculosis across the world is falling. The transmission of the disease, however, remains a serious public health concern. The concern is mainly because of the spread of drug-resistant forms of the tuberculosis bacteria, particularly multi-drug resistant or MDR TB bacteria. MDR TB bacteria are resistant to more than one vital first-line drugs to treat TB.

Further, in a recent study published in Lancet (4 July 2019), researchers have raised concern of the rising *latent* MDR TB. *Latent* MDR TB means people with MDR TB infection but not necessarily with symptoms of tuberculosis - such people are not known of having contact of a person with active MDR TB. Researchers estimate that three in every 1000 people globally carry latent MDR TB infection and prevalence is around ten times higher among those younger than 15 years. [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(19)30307-X/fulltext].

Of a handful of countries that contribute to the global pool of MDR TB bacteria, India is at the top. On the other hand India announces the target of ending TB by 2025, five years ahead of the rest of the world.

Jhola Chhap doctors in India

In parts of the world where populations do not have equal access to healthcare, the practice of

medicine by untrained 'doctors' is not uncommon. Such practitioners - quacks, compounders, barefoot doctors, pharmacists and so forth have acquired different local names. Jhola Chhap is one such name given to quacks in India. They are called Jhola Chhap doctors because they carry a Jhola (a bag for Hindi) that will invariably contain painkillers, antibiotics and steroids in injectable forms. They even acquire a 'chhap' (certificate) to practice medicine. By virtue of their contacts with local influential people, politicians and authorities, they are allowed to practice modern medicine like a 'doctor'.

Whether or not these Jhola Chhap or 'man with a bag' doctors have certificates to practice medicine, they are certainly popular among villagers and slumdwellers in India. They are popular because they will arrive right at the patient's doorstep at any hour of the day. Transporting a patient to a hospital in the town is often cumbersome, also expensive; that too does not guarantee any better treatment outcome than a local Jhola Chhap. Jhola Chhaps therefore remain popular. Usually one or two villagers will have the mobile number of the near by Jhola Chhap who make the call on behalf of the patient's family - a Jhola Chhap's agent, so to speak.

These Jhola Chhap untrained doctors are 'friendly' with villagers (or slum dwellers). They speak the local dialect; they do not harass patients' families asking for immediate payments - patients can pay later in cash or kind e.g. some paddy or a bullock or a tree!

Unlike other practitioners or healers such as herbal doctors, homeopaths, acupuncturists or 'spirit' doctors, Jhola Chhap doctors prescribe 'modern' medicines, often not knowing the disease or the toxicities of drugs they prescribe or inject.

Jhola Chhaps contibrute to the rising MDR TB and latent MDR TB but little is done to minimise this risk factor.

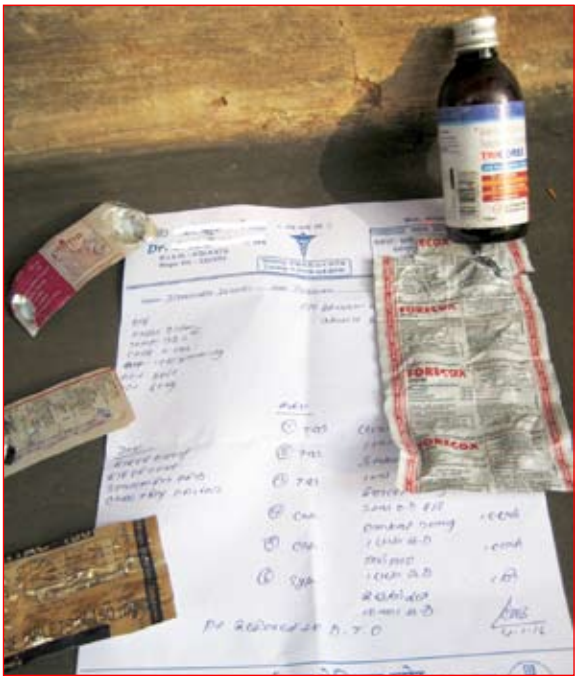
Jhola Chhaps and MDR TB

How serious the 'jhola chhap' risk factor is?

The precondition of preventing tubercolosis bacteria becoming dug-resistant is to diagnose and treat tuberculosis properly and adequately with standard anti-TB regimes, and to ensure that patients complete the full course of treatment. Any faltering in the diagnosis and treatment of TB - incomplete treatment, delaying treatment and not using standard anti-TB regime, will increase the chances of developing drug-resistant TB (or MDR TB).

Treatment delay and *Wrong treatment*

A Jhola Chhap doctor neither has the capacity to diagnose tuberculosis properly, nor he has any commitment to ensure that his patient completes the full course of treatment. He



cannot differentiate tuberculosis from other respiratory infections and therefore gives cough syrups, tonics and antibiotics for all patients with respiratory conditions. This results in delaying patient's anti-TB treatment - a common occurence among TB patients in rural in India. In marginalised communities, the average treatment-delay before initiating standard anti-TB treatment is about 4-6 months. Treatment-delay coupled with wrong treatment by Jhola Chhap doctors help TB bacteria becoming resistant to standard anti-TB drugs.

Wrong treatment and wrong dosage

Even for trained doctors, if not familiar with anti-TB drugs, it is not uncommon to prescribe wrong dosages of anti-TB drugs. It is therefore no surprise that untrained Jhola Chhaps will prescribe wrong dosages.

Wrong treatment by Jhola Chhaps is common. Jhola Chhaps seldom prescribe the standard combination of four drugs - instead they use one or two anti-TB drugs. In addition Jhola Chhaps do not prescribe correct dosages of drugs usually lower the required dasages causing TB bacteria easily survive and transform into resistant forms.

Indiscriminate use of antibiotics

Selling antibiotics over the counter without a prescription, particularly by pharmacies in smaller towns in India, is not strictly regulated. Jhola Chhaps therefore have abundant supply of antibiotics. Further, it is a common practice by 'Jhola Chhaps' in villages (also by private doctors in towns) to prescribe fluroquinolone class of antibiotics such as Ciprofloxacin or Ofloxacin. Prescribing such antibiotics carelessly to treat respiratory infections has not only contributed to the rise of drug-resistant tuberculosis bacterial but has also complicated the treatment of MDR TB. Certain fluroquinolone antibiotics used as anti-MDR TB drugs have become less effective because of indiscriminate use of these class of anitbiotics.

Jhola Chhaps and Private doctors - the TB Risk Duo

Both Jhola Chhaps and private doctors, particularly in villages and smaller towns in adivasi (indigenous populations) and dalits (lower castes) populated states such as Jharkhand, Chhattisgarh and Odisha, contribute significantly to India's MDR TB. Jhola Chhaps are not trained but are allowed to practice medicine; whereas 'private' doctors have some sort of medical qualification and 'dubious' certificates to practice. The authenticity of their trainings is also doubtful. I knew one such 'local' doctor who started his career by repairing bicycles, later tailoring, and finally he became a Jhola Chhap!

There is little difference between a poorly trained 'private' doctor and a Jhola Chhap – both prescribe strong antibiotics, often prescribe wrong treatment and cause treatment-delay for TB treatment by treating wrongly and/or incompletely. A TB patient in marginalised adivasi and dalit communities cannot afford the exorbitant fees these 'local' doctors charge and therefore stop treatment without completing the full course of anti-TB treeatment - another reasons for the rise of MDR TB in India.

[Written by Dr Manan Ganguli]

Efforts have been made to upgrade the knowledge of medical practitioners, private doctors and other practitioners, so that treatment is standard. Such efforts have not helped controlling tuberculosis in smaller towns and remote villages - instead these practitioners continue to contribute the rising pool of MDR TB or latent MDR TB.

Should the experts and policy makers not review their strategy of Private-Public Partnership in TB control?

Comments and suggestions welcome.